AMENDMENTS - CLEAN VERSION

In the claims:

Presented below are the claims, as amended, in a clean, unmarked format with changes entered and not marked. For the Examiner's convenience, all pending claims are presented herein.

1. (Amended) A method comprising:

generating return scenarios for each asset class of a plurality of asset classes based upon future scenarios of one or more economic factors;

creating a mapping from each financial product of an available set of financial products onto one or more asset classes of the plurality of asset classes by determining exposures of the available set of financial products to each asset class of the plurality of asset classes;

determining expected returns and volatility of returns for each of a plurality of portfolios on the efficient frontier based upon the mapping, each of the plurality of portfolios including combinations of financial products from the available set of financial products;

identifying a recommended portfolio of the plurality of efficient portfolios that maximizes an expected utility of wealth for a particular investor.

2. (New) The method of claim 1, wherein the expected returns and the volatility of returns for each of the plurality of portfolios on the efficient frontier are determined analytically.

3. (New) The method of claim 1, wherein the expected returns and the volatility of returns for each of the plurality of portfolios on the efficient frontier are determined based upon a simulation process.

4. (New) The method of claim 1, wherein the particular investor's utility function comprises a mean-variance utility function.

5. (New) The method of claim 1, wherein said identifying a recommended portfolio assumes a constant-mix strategy.

6. (New) The method of claim 1, wherein said identifying a recommended portfolio assumes a buy-and-hold strategy.

7. (New) The method of claim 1, wherein the available set of financial products represents a set of financial products offered through an employee-directed defined contribution plan.

8. (New) The method of claim 7, wherein the available set of financial products comprises one or more of bonds, stocks, and mutual funds.

9. (New) The method of claim 1, wherein said generating return scenarios for each asset class of a plurality of asset classes employs a model that incorporates a stochastic process that limits the prices on the assets and payoffs in such a way that no arbitrage is possible.

10. (New) The method of claim 1, wherein the plurality of asset classes includes a core set of asset classes and a set of factor asset classes, and wherein the method further includes conditioning the factor asset classes upon the core asset classes.

11. (New) The method of claim 10, wherein said conditioning the factor asset classes upon the core asset classes employs the following equation:

$$r_{it} = \alpha_i + \beta_{1i} ST\_Bonds_t + \beta_{2i} LT\_Bonds_t + \beta_{3i} US\_Stocks_t + \varepsilon_t$$

where,

r_{it} represents the return for a factor, i, at time t,

β_{ji} represents the sensitivity of the factor i to core asset class j,

ST_Bonds_t represents the returns estimated for short-term US government bonds at time t,

LT_Bonds_t represents the returns estimated for long-term US government bonds at time t.,

US_Stocks_t represents the returns estimated for US stocks at time t,

α_i is a constant representing the average returns of factor asset class i relative to core asset class exposures, and

ε_t is a residual random variable.

12. (New) The method of claim 11, further including imposing macroconsistency upon the factor asset class returns by estimating α_i relative to a known efficient portfolio.

13. (New) The method of claim 12, wherein said imposing macroconsistency upon the factor asset class returns includes calibrating α_i to be consistent with observed market weightings of the factor asset classes associated with the Market Portfolio.

14. (New) A method comprising the steps of:

a pricing kernel step for generating return scenarios for each asset class of a plurality of asset classes based upon future scenarios of one or more economic factors;

a returns-based style analysis step for creating a mapping from each financial product of an available set of financial products onto one or more asset classes of the plurality of asset classes by determining exposures of the available set of financial products to each asset class of the plurality of asset classes;

a step for determining expected returns and volatility of returns for each of a plurality of portfolios on the efficient frontier based upon the mapping, each of the plurality of portfolios including combinations of financial products from the available set of financial products; and

a recommendation step for identifying a recommended portfolio of the plurality of efficient portfolios that maximizes an expected utility of wealth for a particular investor.

15. (New) The method of claim 14, wherein the expected returns and the volatility of returns for each of the plurality of portfolios on the efficient frontier are determined analytically.

16. (New) The method of claim 14, wherein the expected returns and the volatility of returns for each of the plurality of portfolios on the efficient frontier are determined based upon a simulation process.

17. (New) The method of claim 14, wherein the particular investor's utility function comprises a mean-variance utility function.

18. (New) The method of claim 14, wherein said recommendation step assumes a constant-mix strategy.

19. (New) The method of claim 14, wherein said recommendation step assumes a buy-and-hold strategy.

20. (New) The method of claim 14, wherein the available set of financial products represents a set of financial products offered through an employee-directed defined contribution plan.

21. (New) The method of claim 20, wherein the available set of financial products comprises one or more of bonds, stocks, and mutual funds.

22. (New) The method of claim 14, wherein said pricing kernel step employs a model that incorporates a stochastic process that limits the prices on the assets and payoffs in such a way that no arbitrage is possible.

23. (New) A method comprising:

estimating returns for each financial product of an available set of financial products based upon the financial product's sensitivity to movements of a plurality of predetermined economic factors by utilizing a factor model;

determining expected returns and volatility of returns for each of a plurality of portfolios on the efficient frontier for the available set of financial products, the plurality of portfolios each including one or more financial products of the available set of financial products; and

identifying a recommended portfolio of the plurality of portfolios that maximizes a particular investor's utility function at a predetermined time horizon taking into consideration the timing and amount of expected contributions and expected withdrawals, if any.

24. (New) The method of claim 23, wherein the expected returns and the volatility of returns for each of the plurality of portfolios on the efficient frontier are determined analytically.

25. (New) The method of claim 23, wherein the expected returns and the volatility of returns for each of the plurality of portfolios on the efficient frontier are determined based upon a simulation process.

26. (New) The method of claim 23, wherein the utility function comprises a mean-variance utility function.

27. (New) The method of claim 23, wherein said identifying a recommended portfolio assumes a constant-mix strategy.

28. (New) The method of claim 23, wherein said identifying a recommended portfolio assumes a buy-and-hold strategy.

29. (New) The method of claim 23, wherein the available set of financial products represents a set of financial products offered through an employee-directed defined contribution plan.

30. (New) The method of claim 29, wherein the available set of financial products comprises one or more of bonds, stocks, and mutual funds.

31. (New) A financial advisory system comprising:

a forecasting means for generating return scenarios for each asset class of a plurality of asset classes based upon future scenarios of one or more economic factors;

a fund decomposition means, communicatively coupled to the forecasting means, for creating a mapping from each financial product of an available set of financial products onto one or more asset classes of the plurality of asset classes by determining exposures of the available set of financial products to each asset class of the plurality of asset classes;

a means, communicatively coupled to both the forecasting means and the fund decomposition means, for determining expected returns and volatility of returns for each of a plurality of portfolios on the efficient frontier based upon the mapping, each of the plurality of portfolios including combinations of financial products from the available set of financial products; and

a portfolio optimization means for identifying a recommended portfolio of the plurality of efficient portfolios that maximizes an expected utility of wealth for a particular investor based on the expected returns and the

volatility of returns.

32. (New) A computer system comprising:

a storage device having stored therein a portfolio optimization routine to determine portfolio return scenarios for one or more portfolios including combinations of financial products from an available set of financial products and identify a recommended portfolio;

a processor coupled to the storage device to execute the portfolio optimization routine to generate asset class return scenarios, a mapping, portfolio return scenarios, and identify the recommended portfolio, where:

the asset class return scenarios are generated for each asset class of a plurality of asset classes based upon future scenarios of one or more economic factors;

the mapping associates each financial product of the available set of financial products with one or more asset classes of the plurality of asset classes, the mapping is generated by determining exposures of the available set of financial products to each asset class of the plurality of asset classes;

the portfolio return scenarios are generated by determining expected returns and volatility of returns for each of a plurality of portfolios on the efficient frontier based upon the mapping, each of the plurality of portfolios including combinations of financial products from the available set of financial products; and

the recommended portfolio is identified by determining a portfolio of the plurality of efficient portfolios that maximizes an expected utility

of wealth for a particular investor.

33. (New) A machine-readable medium having stored thereon data representing sequences of instructions, said sequences of instructions which, when executed by a processor, cause said processor to:

estimate returns for each financial product of an available set of financial products based upon the financial product's sensitivity to movements of a plurality of predetermined economic factors by utilizing a factor model;

determine expected returns and volatility of returns for each of a plurality of portfolios on the efficient frontier for the available set of financial products, the plurality of portfolios each including one or more financial products of the available set of financial products; and

identify a recommended portfolio of the plurality of portfolios that maximizes a particular investor's utility function at a predetermined time horizon taking into consideration the timing and amount of expected contributions and expected withdrawals, if any.